REMARKS

This Amendment responds to the Office Action dated January 9, 2006 in which the Examiner rejected claims 1, 5, 8, 11, 14 and 17 under 35 U.S.C. §102(e) and rejected claims 2-4, 6-7, 9-10, 12-13, 15-16 and 18-19 under 35 U.S.C. §103.

As indicated above, claims 1, 5, 8, 11, 14 and 17 have been amended in order to make explicit what is implicit in the claims. The amendment is unrelated to a statutory requirement for patentability.

Claim 1 claims an image processor, claim 5 claims a method of image processing and claim 8 claims a recording medium to be executed by a computer storing a program. The image processor, method and program are for detecting a predetermined pattern made of a specific color in input image data and include a still image input device, first and second decision controllers, a color decision controller, and an extraction controller. The still image input device inputs still color image data. The first decision controller decides whether input color data of a target pixel exists in first ranges. The second decision controller decides whether differences between color data of the target pixel and those of pixels adjacent thereto exist in second ranges different from the first ranges. The color decision controller decides that the target pixel has a specified color when the first decision controller decides that the color data of the target pixel exist in the first ranges and the second decision controller decides that the differences exist in the second ranges. The extraction controller extracts pixels having the specific color and detects an image having the predetermined pattern in the extracted pixels.

Through the structure and method of the claimed invention extracting pixels having a specific color and detecting an image having the predetermined pattern in

the extracted pixels as claimed in claims 1, 5 and 8, the claimed invention provides an image processor, method and program which can detect a specific color and pattern in a still image with high precision. The prior art does not show, teach or suggest the invention as claimed in claims 1, 5 and 8.

Claim 11 claims an image processor, claim 14 claims a method of image processing and claim 17 claims a recording medium to be executed by a computer storing a program. The image processor, method and program detect a predetermined pattern made of a specific color in input image data and include still image input device, first and second decision controllers, a color decision controller and an extraction controller. The still image input device inputs still color image data. The first decision controller decides whether input color data of the target pixel exist in first ranges. The second decision controller performs calculation on the input color data of the target pixel and decides whether results of the calculation exist in second ranges different from the first ranges. The color decision controller decides that the target pixel has a specific color when the first decision controller decides that the color data of the target pixel exist in the first ranges and the second decision controller decides that the results exist in the second ranges. The extraction controller extracts pixels having the specific color and detects an image having the predetermined pattern in the extracted pixels.

Through the structure and method of the claimed invention extracting pixels having a specific color and detecting an image having the predetermined pattern in the extracted pixels as claimed in claims 11, 14 and 17, the claimed invention provides an image processor, method and program which can detect a specific color

and pattern of a still image with high precision. The prior art does not show, teach or suggest the invention as claimed in claims 11, 14 and 17.

Claims 1, 5, 8, 11, 14 and 17 were rejected under 35 U.S.C. §102(e) as being anticipated by *Kikuchi et al.* (U.S. Patent No. 6,219,382). Claims 4, 7, 10, 13, 16 and 19 were rejected under 35 U.S.C. §103 as being unpatentable over *Kikuchi et al.* in view of *Sonoda et al.* (U.S. Patent No. 6,115,494).

Kikuchi et al. appears to disclose a system for detecting a change in scenes (a scene change) represented by a moving picture signal (col. 1, lines 9-11). A moving picture search apparatus includes first means for dividing every frame represented by a moving picture signal into blocks; second means for calculating a number of pixels forming portions of a caption in each of the blocks; third means for comparing the number of pixels which is calculated by the second means with a threshold value; fourth means for, when the calculated number of pixels is equal to or greater than the threshold value, deciding that the related block is a caption-containing block; fifth means for detecting a time interval related to the moving picture signal during which every frame represented by the moving picture signal has a caption-containing block decided by the fourth means; and sixth means for selecting a 1-frame-corresponding segment of the moving picture signal which represents a caption-added frame present in the time interval detected by the fifth means (col. 11, line 65 through col. 12, line 13). In the moving picture search apparatus of the second basic embodiment, the second means comprises means for detecting a luminance level of each of pixels composing a block, means for comparing the detected luminance level with a threshold level, and means for, when the detected luminance level is equal to or greater than the threshold level, deciding

that the related pixel forms a portion of a caption. In the moving picture search apparatus of the third basic embodiment, the second means comprises means for detecting a luminance level of each of pixels composing a block, means for comparing the detected luminance level with a threshold level, means for calculating a difference between the detected luminance level of each of pixels and the detected luminance level of a neighboring pixel, means for comparing the calculated difference with a threshold difference, and means for, when the detected luminance level is equal to or greater than the threshold level and the calculated difference is equal to or greater than the threshold difference, deciding that the related pixel forms a portion of a caption. In the moving picture search apparatus of the fourth basic embodiment, the second means comprises means for detecting a color of each of pixels composing a block, means for comparing the detected color with a reference color range, and means for, when the detected color is in the reference color range, deciding that the related pixel forms a portion of a caption. In the moving picture search apparatus of the fifth basic embodiment, the second means comprises means for detecting a color of each of pixels composing a block, means for comparing the detected color with a reference color range, means for calculating a difference between the detected color of each of pixels and the detected color of a neighboring pixel, means for comparing the calculated difference with a reference difference, and means for, when the detected color is in the reference color range and the calculated difference is in the reference difference, deciding that the related pixel forms a portion of a caption (col. 12, lines 15-58).

Thus, *Kikuchi et al.* merely discloses detecting captions within a moving picture. Nothing in *Kikuchi et al.* shows, teaches or suggests extracting pixels having

a specific color and detecting an image having a predetermined pattern in the extracted pixels as claimed in claims 1, 5, 8, 11, 14 and 17. Rather, *Kikuchi et al.* merely is directed to a moving picture search apparatus which searches for a caption.

Sonoda et al. appears to disclose an image processing method and device optimally suited to prevent the read-out or printing of documents which may not legally be copied, such as bank notes, negotiable securities or top secret documents, as well as a copier, scanner or printer in which it is installed. (Col. 1, lines 6-10). FIG. 5 shows the overall configuration of such an image processing device. In this example, the device is installed in a full-color copy machine. When someone uses the copy machine to try to copy a non-reproducible document such as a bank note, the image processing device detects this and interrupts the copying process. As can be seen in the drawing, the image data read by the image sensor in the copy machine are transmitted to image input unit 12 (a buffer IC) in image processing device 10. As these image data are scanned by an image sensor such as a CCD, they are transmitted successively in real time, region by region, to the image processing device. The actual data which are sent are 8-bit color data for each of the red (R), green (G) and blue (B) components. The RGB color signals pass through image input unit 12 and are transmitted to binary processing unit 13. The binarized image data (i.e., a binary image) are stored in storage device 14. The binary image stored in device 14 is sent to mark location detection unit 15. The marks 2 constituting pattern 1 are extracted from the binary image, their locations are specified, and they are stored in storage device 16. Everything before device 16 constitutes the aforesaid unit to detect the marks. The data representing the

locations of marks 2 which are stored in device 16 are transmitted to pattern location matching unit 17. A window of a specified shape and size is used to determine how well the locations of the marks match a specified arrangement (i.e., the arrangement constituting pattern 1 (see FIG. 1)). The result of this determination is transmitted to goodness output unit 18. If the goodness of fit received by goodness output unit 18 exceeds a given value, a signal indicating that the pattern has been detected is output to the copy machine. Binary processing unit 13 consists of mark shape extraction unit 13a, mark color extraction unit 13b and AND element 13c, which finds the logical product of the outputs of units 13a and 13b. A single color component signal with a high density, whichever of the RGB signals is best suited to extracting the mark, is sent to mark shape extraction unit 13a. The other color component signals, or, alternatively, all the color component signals, are sent to mark color extraction unit 13b. The marks we detected in this example are yellow, so the B signals are sent to mark shape extraction unit 13a. (Col. 10, lines 20-65). Mark color extraction unit 13b uses a 4-bit window comparator because printed materials in general suffer from extreme non-uniformity (variation) of color. Higher color resolution would be pointless. However, as pattern recognition requires accuracy, mark shape extraction unit 13a uses an 8-bit comparator, as mentioned above. Separating pattern recognition from color extraction in this way allows us to extract the mark accurately and absorb errors due to variation among the component colors constituting the mark so that the mark can be specified correctly. (Col. 11, lines 25-35)

Thus, *Sonoda et al.* merely discloses separating pattern recognition from color extraction to extract a mark. Thus nothing in *Sonoda et al.* shows, teaches or

suggests an extraction controller which extracts pixels having a specific color and which detects an image having a predetermined pattern in the extracted pixels as claimed in claims 1, 5, 8, 11, 14 and 17. Rather, *Sonoda et al.* teaches away from the claimed invention and separates pattern recognition from color extraction in order to allow extraction of the mark accurately and absorbs error due to variations among the component colors (column 11, lines 30-34, i.e., pattern recognition is separated from color extraction purposely in *Sonoda et al.* and thus pattern recognition is not from extracted pixels).

Since neither *Kikuchi et al.* nor *Sonoda et al.* shows, teaches or suggests detecting an image having a predetermined pattern in extracted pixels as claimed in claims 1, 5, 8, 11, 14 and 17, applicants respectfully request the Examiner withdraws the rejection to the claims under 35 U.S.C. §102(e) or under 35 U.S.C. §103.

Claims 2, 3, 6 and 9 were rejected under 35 U.S.C. §103 as being unpatentable over *Kikuchi et al.* in view of Mutoh et al. (U.S. Patent No. 6,631,210). Claims 12, 15 and 18 were rejected under 35 U.S.C. §103 as being unpatentable over *Kikuchi et al.* in view of Kuwata et al (U.S. Patent No. 6,151,410).

Applicants respectfully traverse the Examiner's rejection of claims 2-3, 6, 9, 12, 15 and 18 under 35 U.S.C. § 103. The claims have been reviewed in light of the Office Action, and for reasons which will be set forth below, Applicants respectfully request the Examiner withdraws the rejection to the claims and allows the claims to issue.

As discussed above, since nothing in *Kikuchi et al.* shows, teaches or suggests the primary features as claimed in claims 1, 5, 8, 11, 14 and 17, Applicants respectfully submit that the combination of the primary reference with the secondary

references to *Mutoh et al.* and *Kuwata et al.* would not overcome the deficiencies of the primary reference. Therefore, Applicants respectfully request the Examiner withdraws the rejection to claims 2-3, 6, 9, 12, 15 and 18 under 35 U.S.C. §103.

Thus it now appears that the application is in condition for reconsideration and allowance. Reconsideration and allowance at an early date are respectfully requested. Should the Examiner find that the application is not now in condition for allowance, applicants respectfully request the Examiner enters this Amendment for purposes of appeal.

If for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is requested to contact, by telephone, the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed within the currently set shortened statutory period, Applicants respectfully petition for an appropriate extension of time. The fees for such extension of time may be charged to our Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge our Deposit Account No. 02-4800.

Respectfully submitted,

BUCHANAN INGERSOLL PC

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